



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,767	12/13/2005	Eugene S. Rubin	20030073	5153
22590	7590	02/12/2009		
BAE SYSTEMS PO BOX 868 NASHUA, NH 03061-0868			EXAMINER BONZELL, PHILIP J	
			ART UNIT 3644	PAPER NUMBER
			MAIL DATE 02/12/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,767

Applicant(s)

RUBIN, EUGENE S.

Examiner

PHILIP J. BONZELL

Art Unit

3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/16/2009 has been entered.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show heated elements as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7, 8, 11, 12, and 21 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555) and Czarnecki (US Patent #6267039).

a. For Claims 1, 3, 7, 8, 11, 12, and 21, figure 6 of Bull '295 discloses an aircraft (18) that has a deployed multiple decoys (22) that are towed by fiber optic cables (20) of various lengths having termination points a distance from a terminating point of other fiber optic cables during at least one aircraft flight time period. Figure 13 discloses powering the decoy with a laser source (40) and an amplifier (35) that increases the outgoing signal so that it is stronger than that of the aircraft. While Bull is silent about the actual deployment and retraction of the

towed decoy, figure 4 of Carlson '555 teaches the ability to deploy and retract a towed decoy at anytime based on the warning receiver (100). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 with the deployment and retraction abilities of Carlson '555 in order to allow the aircraft to have the decoy out only when necessary to increase vehicle performance when it is not needed.

b. While Bull '295 teaches the use infrared to send information and power in figure 13, it converts the infrared signal into a radio frequency to attract an RF missile. Both Bull '295 and Carlson '555 are silent about the decoy being infrared, figure 4 of Czarnecki '039 teaches directly radiating infrared energy into the atmosphere infrared as a decoy which allows for an incoming missile to lock on to a fake signature and hit a sacrificial portion of the aircraft so that it can remain flight worthy even after a missile hit. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 and Carlson '555 with the infrared signature of Czarnecki '039 in order to deceive incoming IR missiles.

c. For Claim 2, while Bull '295 is silent about the height that the aircraft is when the decoy is deployed, the Examiner takes Official Notice that it is well known to deploy a decoy at any height when it is needed including at 10,000 ft. Therefore it would have been obvious for a person of ordinary skill in the art at the time of the invention to deploy the decoy at approximately 10,000 ft.

3. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555) and Czarnecki (US Patent #6267039) as applied to claim 1 above, and further in view of Loucks (US Patent #5269132). Bull '295, Carlson '555, and Czarnecki '039 are silent about masking the infrared signature engine. The abstract of Loucks '132 teaches, "the apparatus consists of a plurality of overlapping hollow panels each having a truncated cone shape supplied with a liquid coolant such that the coolant absorbs heat from the surfaces of the panels and converts the liquid to a vapor. The vapor created by this heat absorption is injected from an end opening of a panel between the panels and the exhaust gases of the jet engine to form a boundary layer". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, and Czarnecki '039 with the engine mask of Loucks '132 in order to reduce the infrared signature of the engine so that incoming missiles are less attracted to it.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czarnecki (US Patent #6267039), and Loucks (US Patent #5269132) as applied to claim 4 above, and further in view of Sweeny (US Patent #6055909).

a. For Claim 5, Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 are silent about the use of rapid modulation to increase the intensity of the decoy, however, column 8, lines 36-42 of Sweeny '909 teaches, "Varying the intensity of the IR radiation intensity emitted by the decoy can be used to deceive the

seekers of some missile employing intensity discriminants other than just the centroid scheme described above. In one preferred IR radiation intensity modulation pattern depicted in FIG. 4, the radiant intensity is varied from somewhat higher to somewhat lower than the aircraft engine's IR signature". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czamecki '039, and Loucks '132 with the modulation of Sweeny '909 in order properly avoid a missile strike.

b. For Claim 6, Bull '295, Carlson '555, Czamecki '039, and Loucks '132 are silent about increasing the exhaust obscurant. Column 1, lines 22-24 of Loucks '132 teaches "injecting various coolants into the engine combustion chambers", and Claim 1 teaches, "controlling the supply of liquid coolant". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czamecki '039, and Loucks '132 with the controlling of exhaust obscurant as taught in Loucks '132 in order to mask the infrared signature of the engines in order to reduce the risk of missiles being attracted to the aircraft.

5. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555) and Czamecki (US Patent #6267039) as applied to claim 7 above, and further in view of Brum (US Patent #6571714). Bull '295, Carlson '555, and Czamecki '039 are silent about the use of

heating elements in the infrared decoy. However, claim 18 of Brum '714 teaches, "a plurality of heating elements...within the infrared augments device". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, and Czarniecki '039 with the heating elements of Brum '714 in order to create an infrared source that is well known and tested.

6. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in view of Carlson (US Patent #6683555) and Czarniecki (US Patent #6267039) as applied to claim 12 above, and further in view of Loucks (US Patent #5269132). Bull '295, Carlson '555, and Czarniecki '039 are silent about masking the infrared signature engine. The abstract of Loucks '132 teaches, "the apparatus consists of a plurality of overlapping hollow panels each having a truncated cone shape supplied with a liquid coolant such that the coolant absorbs heat from the surfaces of the panels and converts the liquid to a vapor. The vapor created by this heat absorption is injected from an end opening of a panel between the panels and the exhaust gases of the jet engine to form a boundary layer". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, and Czarniecki '039 with the engine mask of Loucks '132 in order to reduce the infrared signature of the engine so that incoming missiles are less attracted to it.

7. Claims 14-17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czamecki (US Patent #6267039) and Loucks (US Patent #5269132).

d. Figure 6 of Bull '295 discloses an aircraft (18) that has a deployed multiple decoys (22) that are towed by fiber optic cables (20) of various lengths having termination points a distance from a terminating point of other fiber optic cables during at least one aircraft flight time period. Figure 13 discloses powering the decoy with a high power laser source (40) and an amplifier (35) that increases the outgoing signal so that it is stronger than that of the aircraft. While Bull is silent about the actual deployment and retraction of the towed decoy, figure 4 of Carlson '555 teaches the ability to deploy and retract a towed decoy at anytime based on the warning receiver (100). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 with the deployment and retraction abilities of Carlson '555 in order to allow the aircraft to have the decoy out only when necessary to increase vehicle performance when it is not needed.

e. While Bull '295 teaches the use infrared to send information and power in figure 13, it converts the infrared signal into a radio frequency to attract an RF missile. Both Bull '295 and Carlson '555 are silent about the decoy being infrared, figure 4 of Czamecki '039 teaches directly radiating infrared energy into the atmosphere infrared as a decoy which allows for an incoming missile to lock on to a fake signature and hit a sacrificial portion of the aircraft so that it can

remain flight worthy even after a missile hit. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 and Carlson '555 with the infrared signature of Czarnecki '039 in order to deceive incoming IR missiles.

f. Bull '295, Carlson '555, and Czarnecki '039 are silent about masking the infrared signature engine. The abstract of Loucks '132 teaches, "the apparatus consists of a plurality of overlapping hollow panels each having a truncated cone shape supplied with a liquid coolant such that the coolant absorbs heat from the surfaces of the panels and converts the liquid to a vapor. The vapor created by this heat absorption is injected from an end opening of a panel between the panels and the exhaust gases of the jet engine to form a boundary layer". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, and Czarnecki '039 with the engine mask of Loucks '132 in order to reduce the infrared signature of the engine so that incoming missiles are less attracted to it

8. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czarnecki (US Patent #6267039), and Loucks (US Patent #5269132) as applied to claim 7 above, and further in view of Brum (US Patent #6571714). Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 are silent about the use of heating elements in the infrared decoy. However, claim 18 of Brum '714 teaches, "a plurality of heating elements...within the

infrared augments device". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 with the heating elements of Brum '714 in order to create an infrared source that is well known and tested.

Response to Arguments

Applicant's arguments with respect to claim 1-9 and 11-21 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILIP J. BONZELL whose telephone number is (571)270-3663. The examiner can normally be reached on M-Th 8-5;.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. J. B./
Examiner, Art Unit 3644

pjb

/Tien Dinh/
Primary Examiner, Art Unit 3644